


**RECEIVED**  
**CENTRAL FAX CENTER**  
**AUG 25 2004**

**CERTIFICATE OF TRANSMISSION**

I hereby certify that this paper and every paper referred to therein as being enclosed is being transmitted via facsimile to the Commissioner for Patents, United States Patent & Trademark Office, as of today.

 Date: 8-25-04  
Richard T. Lyon

**PATENT**  
Microsoft Docket No. 140726.02  
L&H No. MCS-101-99

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of  
Huang et al.

: Group Art Unit: 2623  
:  
:  
:

Entitled: POSE-INVARIANT FACE  
RECOGNITION SYSTEM AND  
PROCESS

: Examiner: V. M. Kibler  
:  
:  
:  
:  
:  
:  
:  
:  
:  
:

Serial No.: 09/536,820

Filing Date: March 27, 2000

**AFTER FINAL RESPONSE**

Mail Stop AF  
Hon. Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In regard to the final Office Action dated July 2, 2004 (Paper No. 15), it is respectfully requested that the rejections be reconsidered.

The above-identified Office Action was a final rejection of Claims 1, 5, 6, 9, 10, 15, 16, 19, 20, 25, 26, 29 and 31 of the referenced application. However, the

application is believed to be in condition for allowance because the claims are not obvious over the cited art. As such, the applicants hereby respectfully request further examination and reconsideration of the subject application. The reasons for this belief in the non-obviousness of the rejected claims are presented below.

The Section 103(a) Rejections of Claims 1, 5, 6, 9, 10, 15, 16, 19, 20, 25, 26, 29 and 31

The Examiner repeated the rejection of the previous Office Action in the present Action. More particularly, Claims 1, 5, 10, 15, 20 and 25 were rejected under 35 USC 103(a) as being unpatentable over Rowley et al. (Rotation Invariant Neural Network-Based Face Detection) in view of Baluja et al., U.S. Patent No. 6,128,397. It is contended in the Office Action that Rowley teaches all the elements of the rejected claims with the exception of identifying a person from an image of their face. However, it is further contended that the Baluja reference does teach this feature. Thus, it was concluded that it would have been obvious to incorporate the Baluja teachings into Rowley to produce the applicants' claimed invention. In addition, Claims 6, 9, 16, 19, 26, 29 and 31 were rejected under 35 USC 103(a) as being unpatentable over Rowley in view of Baluja, and in further view of Turk et al., U.S. Patent No. 5,164,992. It is contended in the Office Action that the Rowley-Baluja combination teaches all the elements of the rejected claims with the exception of the details of using PCA. However, it is further contended that the Turk reference teaches this feature. Thus, it was concluded that it would have been obvious to incorporate the Turk teachings into the Rowley-Baluja combination to produce the applicants' claimed invention.

In response to these rejections, the applicants respectfully disagreed with the contentions of obviousness and argued that the cited Rowley-Baluja combination does not teach identifying the face pose of an identified individual depicted in an image, as claimed by the applicants. I was stated that, at best, Rowley teaches

using portions of the full face pose to detect faces in images without identifying these pose components, and that Baluja teaches identifying the roll angle of a face in an image. Further it was argued that the addition of the PCA teachings of Turk in regard to the rejection of Claims 8, 9, 16, 19, 26, 29 and 31, did nothing to change the fact that the expanded combination was still missing the aforementioned claimed face pose feature because Turk lack such a teaching as well.

Thus, it was argued in the previous response that the combined teachings of the cited references did not teach identifying the face pose of an identified person. Nor did the cited combination recognize the advantages of doing so-namely knowing not only who is in an image but also where they may be looking. Thus, it was concluded that the applicants claimed an element not taught in the cited combination, which had advantages not recognized therein. Accordingly, no prima facie case of obviousness could be established, and so Claims 1, 5, 10, 15, 20 and 25 were patentable under 35 USC 103 over Rowley in view of Baluja, and Claims 8, 9, 16, 19, 26, 29 and 31 were patentable under 35 USC 103 over Rowley in view of Baluja, and in further view of Turk.

In the present final Office Action, the Examiner does not dispute that the cited references lack teachings of the face pose feature as defined by the applicants in their last response, but apparently contends the applicants assertion that the face pose term refers to the pitch, roll and yaw angles describing the position of a person's head is unpersuasive. The Examiner stated in Page 6 of the final Office Action that:

"the features upon which applicant relies (i.e., pitch, roll and yaw angles) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims".

This statement is apparently directed at the applicants' argument in the previous

response that a face pose is a term of art used in the face recognition field to refer to the **particular pitch, roll and yaw angles that describe the position of a person's head.**

However, the Examiner is misapplying the applicable law on this subject. As stated in the MPEP:

"A term used in the claims may be given a special meaning in the description." (MPEP Section 608.01(o), Eighth Edition, February 2003 Revision);

and

"When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)" (MPEP Section 2173.05(a), Eighth Edition, February 2003 Revision).

This is exactly what the applicants have done. It is expressly stated in the application that:

"the term "pose" or "face pose" will refer to the particular pitch, roll and yaw angles that describe the position of a person's head" (Page 3, lines 28-29).

Accordingly, the Examiner must interpret the term "face pose" as used in the rejected claims to mean the pitch, roll and yaw angles that describe the position of a person's head. As shown above, the cited art does not teach this face pose feature. Thus, it is reiterated that as the applicants have claimed an element not taught in the

Rowley-Baluja combination, and which has advantages not recognized therein, no prima facie case of obviousness can be established in accordance with the holding of *In Re Fine* with regard to Claims 1, 5, 10, 15, 20 and 25. In addition, as the applicants have claimed an element not taught in the Rowley-Baluja-Turk combination, and which has advantages not recognized therein, no prima facie case of obviousness can be established in accordance with the holding of *In Re Fine* with regard to Claims 6, 9, 16, 19, 26, 29 and 31. As such, it is respectfully requested that the rejection of Claims 1, 5, 6, 9, 10, 15, 16, 19, 20, 25, 26, 29 and 31 be reconsidered based on the non-obvious claim language,

**“training a neural network ensemble to identify a person and their face pose...a fusing neural network as its second stage which combines the outputs of the classifiers to generate an output indicative of the person associated with the characterized input image region and the face pose of that person; and employing the network ensemble to identify the person associated with the characterized input image region and the face pose of that person”.**

#### The Objections to Claims 7, 8, 17, 18, 27, 28 and 32-34

Claims 7, 8, 17, 18, 27, 28 and 32-34 were objected to as being dependent upon a rejected base claim. The Examiner stated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The applicants at this time, however, respectfully decline to rewrite these claims because it is their position that the independent claims from which these claims depend are patentable.

#### Summary

In summary, it is believed that the pending claims are in condition for allowance. Accordingly, reconsideration of the rejection of Claims 1, 5, 6, 9, 10, 15,

16, 19-20, 25, 26, 29 and 31 and withdrawal of the objections to Claims 7, 8, 17, 18, 27, 28 and 32-34, are respectfully requested. In addition, allowance of these claims at an early date is courteously solicited.

Respectfully submitted,



Richard T. Lyon  
Registration No. 37,385  
Attorney for Applicant

LYON & HARR, LLP  
300 Esplanade Drive, Suite 800  
Oxnard, CA 93036  
(805) 278-8855